

ZLLS2000

40V SILICON HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

SUMMARY

Schottky Diode $V_R = 40V$; $I_F = 2.2A$; $I_R = 40\mu A$

DESCRIPTION

This compact SOT23-6 packaged Schottky diode offers users an excellent performance combination comprising high current operation, extremely low leakage and low forward voltage ensuring suitability for applications requiring efficient operation at higher temperatures (above 85°C) see Operational Efficiency chart on page 4.



Key benefits:

Performance capability equivalent to much larger packages

Improved circuit efficiency & power levels

PCB area savings

FEATURES

- Low equivalent on resistance
- Extremely low leakage ($40\mu A$ @30V)
- High current capability ($I_F = 2.2A$)
- Low V_F , fast switching Schottky
- SOT23-6 package
- ZLLS2000 complements low temperature equivalent ZHCS2000
- Package thermally rated to 150°C

APPLICATIONS

- DC - DC converters
- Strobes
- Mobile phones
- Charging circuits
- Motor control

ORDERING INFORMATION

DEVICE	REEL (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZLLS2000TA	7	8mm embossed	3000 units
ZLLS2000TC	13	8mm embossed	10000 units

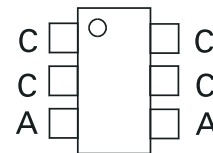
DEVICE MARKING

LL20

Cathode



Anode



Top view

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ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT	
Schottky Diode				
Continuous reverse voltage	V_R	40	V	
Forward current	I_F	2.2	A	
Peak repetitive forward current Rectangular pulse duty cycle	I_{FPK}	3.55	A	
Non repetitive forward current		$t \leq 100 \mu s$	36	A
		$t \leq 10 ms$	12	A
Package				
Power dissipation at $T_{amb}=25^\circ C$ single die continuous single die measured at $t < 5$ secs	P_D	1.1	W	
		1.71	W	
Storage temperature range	T_{stg}	-55 to +150	$^\circ C$	
Junction temperature	T_j	150	$^\circ C$	

THERMAL RESISTANCE

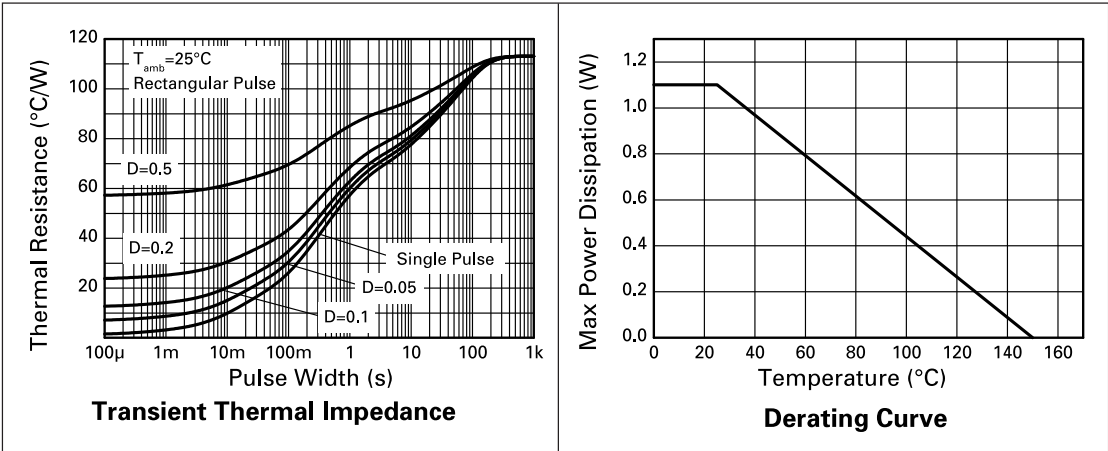
PARAMETER	SYMBOL	VALUE	UNIT
Junction to ambient (a)	$R_{\theta JA}$	113	$^\circ C/W$
Junction to ambient (b)	$R_{\theta JA}$	73	$^\circ C/W$

Notes

- (a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
- (b) For a device surface mounted on FR4 PCB measured at $t < 5$ secs.

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TYPICAL CHARACTERISTICS



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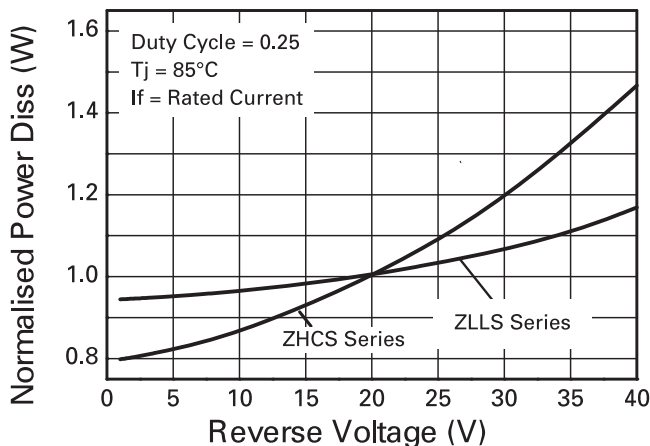
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

SCHOTTKY DIODE CHARACTERISTICS						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Reverse breakdown voltage	$V_{(BR)R}$	40			V	$I_R = 1\text{mA}$
Forward voltage	V_F		260	-	mV	$I_F = 50\text{mA}^*$
			290	-	mV	$I_F = 100\text{mA}^*$
			322	-	mV	$I_F = 250\text{mA}^*$
			345	370	mV	$I_F = 500\text{mA}^*$
			395	430	mV	$I_F = 1000\text{mA}^*$
			440	490	mV	$I_F = 1500\text{mA}^*$
			475	540	mV	$I_F = 2000\text{mA}^*$
			550	640	mV	$I_F = 3000\text{mA}^*$
Reverse current	I_R		25	40	μA mA	$V_R = 30\text{V}$ $V_R = 30\text{V}, T_a = 85^{\circ}\text{C}$
Diode capacitance	C_D		65		pF	$f = 1\text{MHz}, V_R = 30\text{V}$
Reverse recovery time	t_{rr}		6		ns	Switched from $I_F = 500\text{mA}$ to $V_R = 5.5\text{V}$
Reverse recovery charge	Q_{rr}		685		pC	Measured @ $I_R = 50\text{mA}$. $di / dt > 500\text{mA} / \text{ns}$. $R_{source} = 6\Omega; R_{load} = 10\Omega$

*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$

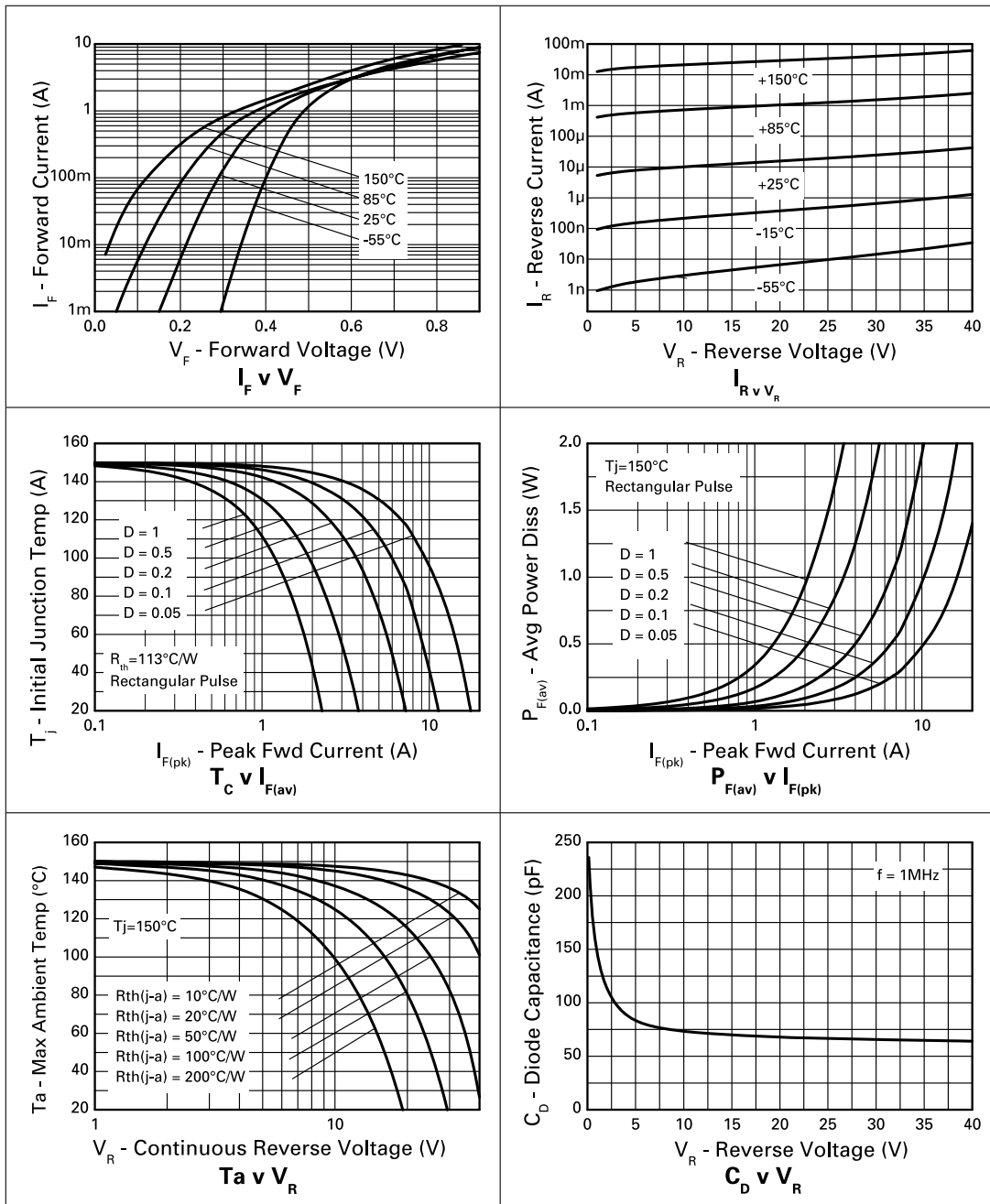
Operational efficiency chart

The operational efficiency chart indicates the beneficial use of the ZLLS series diodes in applications requiring higher voltage, higher temperature operation. Circuits requiring low voltage low temperature operation will benefit from using Zetex low V_F ZHCS series diodes.



Operational Efficiency Example

TYPICAL CHARACTERISTICS



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"Obsolete"Production has been discontinued

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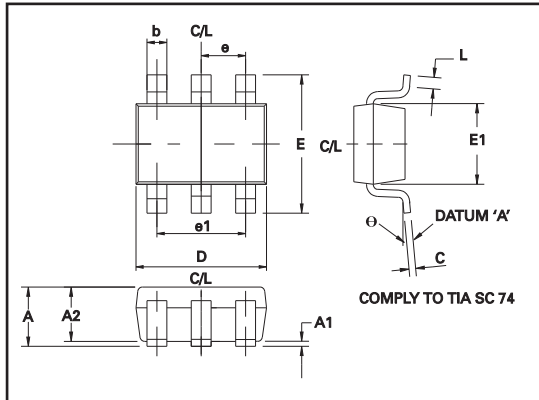
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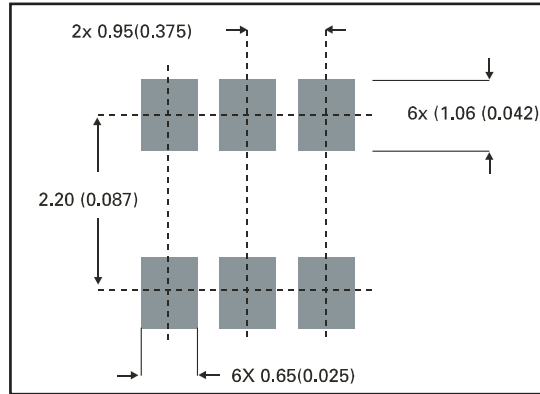


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PACKAGE DIMENSIONS



PAD LAYOUT DETAILS



DIM	Millimeters	
	Min.	Max.
A	0.90	1.45
A1	0.00	0.15
A2	0.90	1.30
b	0.20	0.50
C	0.09	0.26
D	2.70	3.10
E	2.20	3.20
E1	1.30	1.80
L	0.10	0.60
e	0.95 REF	
e1	1.90 REF	
θ	0°	30°

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